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ABSTRACT

Project P.I.A.G.E.T. (Promoting Intellectual Adaptation Given Experiential Transforming) is a demonstration program to train five year old Hispanic children in the English language while maintaining their Spanish language skills. The instructional program is based on Piagetian principles which recognizes thought and language development as a sequential process depending upon interaction with the environment; child interest and self regulation; adult guidance; peer group influence; and play processes. The project comprises classroom and home based programs located in four kindergarten sites in predominatly Hispanic communities. Classroom programs aim to develop communication and awareness skills by developing social and physical knowledge, representational skills, cognitive/logic/mathematics skills, self and cultural identity, and role playing skills. Home based programs are designed to deliver instructional support systems to children and their parents. Project P.I.A.G.E.T. uses current research results in program development, implementation, and evaluation. The project incorporates a plan for replication by providing for information dissemination, actual site visits, staff training and technical assistance, program installation, and evaluation at replication sites. (MJL)

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TECHNICAL PAPER NUMBER 100

A SUMMARY OF PROJECT P.I.A.G.E.T.: PROMOTING INTELLECTUAL ADAPTATION GIVEN EXPERIENTIAL TRANSFORMING WITH HISPANIC BILINGUAL FIVE YEAR OLD CHILDREN AND THEIR FAMILIES

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UD 022 189

Summary of Project P.I.A.G.E.T.:

Promoting Intellectual Adaptation Given Experiential Training
with Hispanic Bilingual Five Year Old Children and Their Families

In 1981-1982 Project P.I.A.G.E.T. was initially funded by the U.S. Department of Education to train five year old Hispanic children in the English language while maintaining their Spanish language. As a new Title VII demonstration program, Project P.I.A.G.E.T. was funded for one year with two possible additional years of funding. Its co-sponsors are The Bethlehem Area School District (B.A.S.D.) and The Pennsylvania State University (P.S.U.); its Co-Directors are Mrs. Sergia Montz, Director of the Office of Minority Bilingual Programs, B.A.S.D. and Dr. Thomas D. Yawkey, Associate Professor of Early Childhood Education, P.S.U. Project P.I.A.G.E.T. is an acronoym which stands for "Promoting Intellectual Adaptation Given Experiential Transforming" and is based on the psychology of Dr. Jean Piaget which explains how young children develop and learn to think and communicate about their social and physical worlds.

Project P.I.A.G.E.T. has a number of important characteristics. First, it rests on basic principles of Piaget's psychology such as: (a) the need for acting on their physical and social environments in order for the children to construct language and thought; (b) the understanding that all systems of thought and language develop in a sequenced way; (c) the child's interest and self regulation serve as motivators for learning and coupled with adult guidance increase the potential for growth in language and thought; (d) social peer groups can serve to enhance the growth of language and thought in young children; and, (e) the child's spontaneous and adult-guided play help develop and expand language and thought concepts. More specifically, the major psychological principles are:

1. The focus of the proposed bilingual kindergarten program is the acquisition of intelligence in a language and cognitve sense through acting and adapting to Classroom/Center and home environments in which these children live and learn. (Piaget, 1969; 1965; 1963).

2. The Piagetian cognitive-interactionism, as a general foundation for the bilingual kindergarten program, illuminates the linguistic/cognitive benchmarks characteristic of this age child. Coupled with the data gathered from the assessment of needs of these bilingual youngsters, these benchmarks and assessment of needs of these bilingual children provide powerful tools in and a firm structure for assisting their development and learning (Inhelder & Piaget 1958; 1964).
3. The focus of this bilingual kindergarten program aims at providing sequenced and concrete language/cognitive growth which, in turn, prepares the way for later more advanced and abstract linguistic/cognitive concepts (Piaget, 1962; 1952).
4. The focus of the bilingual kindergarten program is experiential and requires the youngsters to become actively and physically involved in constructing his/her linguistic/cognitive knowledge in the physical environment and using adult-guided Piagetian-derived experiential techniques (Piaget, 1963; 1952).
5. The bilingual kindergarten program and the Instructional Approach and its components focus on the child's self regulation of his/her learning through adult guidance (Piaget, 1965).
6. The bilingual kindergarten program employs the principle of social interaction derived from Piagetian cognitive-interactionism (Inhelder & Piaget, 1964).
7. The bilingual kindergarten program and its Instructional Approach emphasize constructivist play routines (Piaget & Inhelder, 1964; Yawkey, 1980).

Second, these and other basic psychological principles are implemented and expanded through instructional techniques implied from these principles. Several of these techniques that form the bases for Project P.I.A.G.E.T. include: (a) active involvement of the children in learning; (b) on-going diagnosis of present levels of language; (c) language substitution patterns; (d) replacement patterning and selective visual attending and questioning.

Third, Project P.I.A.G.E.T. contains four project kindergarten sites in elementary schools predominately in Hispanic communities. Two full time bilingual teachers and four full time paraprofessionals service the project sites.

Fourth, the project contains both center and home-based programs and a description of each follows.

The P.I.A.G.E.T. Project Home Based Program is a second delivery system that:

1) delivers instruction on child language and rearing routines to the parents. In this way the parents who work with their own children in home settings, compliments, crystalizes, and expands the service of the project.
2) delivers information about child language and care giving routines on particular topics and relevant areas of interest to the project parents.
3) delivers paraprofessionals into the home of the families of the bilingual kindergarten children served.
4) delivers information about P.I.A.G.E.T. to parents and clarifies its four mission goals and performance objective relative to questions/concerns/interests.

The Center/Classroom and Home Programs rest on delivering instructional support systems to target participants and their families. The delivery systems unfold, in part, through instructional techniques and are carefully selected.

For the Home Program a minimum of two paid paraprofessonals are employed for the under go training. These paraprofessionals are trained and have opportunities to practice adult strategies and routines derived from the cognitive-interactionist psychology prior to entry into the homes of parents having children in the Center/Classroom Program. Inservice training also continues on a weekly schedule throughout the project year.

The paraprofessionals in the Home Program during the first year of the project will be able to:

1) work directly with the parents of the bilingual kindergarten children on showing and modeling adult instructional techniques derived from the cognitive interactionist principles.
2) explain the philosophy of the project relative to the needs and concerns of the individual bilingual families.
3) develop positive and constructive attitudes in the parents of the benefits of schooling for their children enrolled in the Center/ Classroom Program.
4) develop and model caregiving routines and child development practices for the parents to be better able to use them and teach their children in their home.
5) expand the parents attitudes about their family, and schooling and their hopes for their children.
6) show parents how effectively to use the newsletter, "Tips for Parents of Bilingual Kindergarten Children," and specifically demonstrate the uses of the learning activities and experiences identified and explained in the newsletter with their youngsters.
7) demonstrate model and have the parents imitate the use of common objects and materials found in their homes for learning experiences in language and for other concept growth areas.
8) help the parents view the home as a learning resource with its ample opportunities for language and concept growth for their children.

The Center/Classroom aspect of Project P.I.A.G.E.T. is designed to deliver:

1) language, cognitive (thinking skills), and self-identity instruction to bilingual kindergartners in Spanish and English;
2) health and nutritional service to bilingual kindergartners and their families being served in the project;

3) instructional support to classroom teachers through paid part-time parent citizen educators. These paraprofessionals will be parents of children enrolled in the project;

4) a newsletter entitled, "Tips for Parents of Bilingual Kindergartners." This communication will be provided to parents concerning the day to day activities of the project. This is intended to instill the "whats" and "hows" of educational activities carried out in the classroom so that parents can follow-through with them in the home. The newsletter will be issued on a bi-monthly basis;

5) a setting in which parents of bilingual kindergarten children learn about the educational system and how to make appropriate decisions about their child's present and future schooling.

The objectives of the Center/Classroom Based Program of Project P.I.A.G.E.T. are based on the following concepts. These knowledge and fundamental areas are seen as critical in the learning process and will serve as the foundation of all learning activities.

1) social and physical knowledge - learning to give and gain information from people and things in the childs environment;

2) representational skills - learning to transform things and events into words for the purpose of communication and more efficient learning ability;

3) cognitive/logic - mathematical skills - the ability to organize information into logical categories such as size, shape, weight, likes and differences. Organizing information into manageable units and determining logical sequences from various views, such as small to large; narrow to wide. These concepts are seen as necessary for the development of mathematical abilities;

4) self and cultural identity - establishing a positive as well as realistic self image as a family member, a member of the Hispanic cultural groups and as a member of society at large; and,

5) make-believe using pretend ideas, thoughts and actions in dramatic and socio-dramatic "free" play.

Instructional objectives based on the concepts just discussed are many and varied. One of the main considerations would be that the child not learn only labels for things, feelings, but the essence or ever changing nature of the world around him. He must be able to compare, determine similarities and differences in things and feelings, and reach conclusions that will help him constructively adapt to his educational, home, and community environments. Examples of instructional objectives under social and physical knowledge would be:

1) establish communication skills for things or events visually perceived or experienced through developing visual memory-discrimination-attention and providing words to represent these perceptions;

2) establish communication skills for things or events auditorally perceived or experienced through developing auditory memory - discrimination - attention and providing words to represent these perceptions;

3) establish communication skills for things or events perceived or experienced through developing an awareness of body movement and effective use of the senses of smell, taste, touch and bodily functions. Vocabulary based on these experiences will be provided;

4) establish knowledge of English grammar by teaching English rather than using it to teach concepts;

5) establish social awareness of the communication of social experiences to classmates and adults;

Examples of instructional objectives under representational skills would be:

1) develop the ability to produce a mental image of things and events which are not presently being observed by the child;
2) develop symbolic behavior through make believe activities (broom for a horse) which forms a critical linkage with language behavior (word for a horse);
3) develop symbolic behavior without props (child "gallops" around pretending to ride a horse);
4) develop the ability to communicate effectively and efficiently concerning three dimensional real objects moving to the more difficult task of working with a picture - the real object (representational level);

Examples of instructional objectives under cognitive/logic-mathematical skills would be:

1) sort and group objects into categories and develop verbal and non-verbal communication for objects classified;
2) sort and group objects in many and varied ways related to the likes and differences of objects and demonstrate through verbal and non-verbal behavior;
3) to develop logical sequential relationships between sets of objects and demonstrate these relationships through verbal communication.

Examples of instructional objectives related to self and cultural identity would be:

1) develop a positive self image of self through personal successes in learning routines and social relationships with project peers and adults;
2) develop self motivation and independence and to express needs through verbal and nonverbal communication.

3) develop creativity and take pride in producing varied responses through verbal and nonverbal communications

An example of a goal related to make-believe would be to nurture the youngster's pretend concepts through enactment of dramatic and socio-dramatic play in "free" play settings.

Instructional Techniques

Instructional Techniques identify and describe what teachers and paraprofessionals (i.e., parents, citizen educators) do and use with the bilingual kindergartner (Yawkey & Silvern, 1977), to achieve the performance objectives of enhancing proficiency in English language, cognitive, and self-identity development and learning. Instructional Techniques, in addition, show what types of approaches are used by paraprofessionals with parents. In this context, instructional techniques for Project P.I.A.G.E.T. has four over-riding objectives. The objectives are to:

1. enhance the proficiency of the bilingual kindergartners in English language through Center/Classroom and Home Programs;
2. develop intellectual and self-identity growth and learning in the target bilingual populations through Center/Classroom and Home Programs;
3. employ ways of delivering instructional techniques that are based on genuine participation and cooperation between teachers and paraprofessionals (i.e., parents) through Center/Classroom and Home Programs (Gordon, 1970); and,
4. devise and deliver the instructional techniques/methods in ways consistent: (a) with the Psychological Foundations Component to maximize the "whats" and "hows" of learning and developmental potential of the target group of bilingual kindergartners; (b) with the results of the needs assessments; and (c) with results from on-going data collection/analysis.

Accordingly, selected instructional techniques (implied from the Psychological Foundations Component together with its respective cognitive interactionist principle) are used in Center/Classroom and Home Programs. They are:

1. Active involvement by manipulating objects and experiencing concrete events are used in developing language repertoires and other concepts in the bilingual kindergartners (Implication derived from the Psychological Foundations Principle 4);
2. On-going diagnosis of the bilingual kindergartner's present level of development and learning of language repertoires and other concepts is used before higher order learning opportunities and experiences are given (Implications derived from Psychological Foundations Principle 3);
3. Meaningful types and kinds of involvement experiences are used in developing language repertoires and other concepts. The meaningful involvement experiences are matched with the current level of language, cognitive and self-identity growth of the bilingual kindergartner in a planned effort to challenge and thereby extend and advance his current level of growth and learning (Implication derived from Psychological Foundations Principles 1 and 2);
4. In developing and learning new concepts, the bilingual kindergartner receives feedback from concrete objects and experiences and through adult guidance (Implications derived by Psychological Foundations Principles 1 and 4);
5. In developing and learning new concepts in language, the bilingual kindergartner receives feedback from adults and peers (Implications derived from Psychological Foundations Principles 1 and 6);
6. In developing and learning new concepts, the bilingual kindergartner receives feedback from his own cognitive structure and through processes and through adult guidance (Implications derived from Psychological Foundations Principles 1 and 5);

7. Bilingual kindergarten children select certain learning activities in which to become involved (Implications derived from Psychological Foundations Principle 5);
8. Bilingual kindergarten children complete certain prescribed learning activities (Implications derived from Psychological Foundations Principles 2, 3, 4, and 6);
9. Bilingual kindergarten children identify felt interests and needs which are gathered from adult observation and used by teachers and paraprofessionals to encourage language repertoires and other concepts (Implications derived from Psychological Foundations Principle 5);
10. Bilingual kindergarten children employ constructivist play actions and activities to encourage language repertoires and other concept development (Implication derived from Psychological Foundations Principle 7);
11. Active involvement in situations and events; manipulation of objects and concrete experiences are used for language learning and communication repertoires and as precursors for written language routines (Yawkey & Blohm, 1977, Blohm & Yawkey, 1976) (Implications derived from Psychological Foundations Principles 1, 2, 3, 4, and 6);
12. Language substitution patterning and drills are used with bilingual kindergarten children to practice and learn language repertoires and other concepts (Yawkey & Villarreal, 1980) Implications derived from Psychological Foundations Principle 6);
13. Replacement patterning and drills are used with bilingual kindergarten children to practice and learn language repertoires and other concepts (Yawkey & Villarreal, 1980) (Implications derived from Psychological Foundations Principle 6);

14. Selective visual attending and questioning are used. They permit the bilingual kindergartner to practice and learn language repertoires and other concepts by physical involvement and action on objects, situations, and events and through adult guidance (Yawkey & Villarreal, 1980);
15. Attending to nonvisual stimuli is used and assists bilingual kindergarten children to develop and use their language repertoires by involvement and actions on objects, situations, and events (Yawkey & Villarreal, 1980) (Implications derived from Psychological Foundations Principle 6);
16. Practice and development of language memory are used through questions about objects, situations, and events experienced. This technique assists retrieval and recall of language repertoires and other concepts (Yawkey & Villarreal, 1980) (Implications derived from Psychological Foundations Principle 6);
17. Directed dialogue is used with the bilingual kindergarten children. It requires the youngster to use oral language to describe events and situations that are about to or have occurred and facilitates language repertoires and other concepts (Yawkey & Villarreal, 1980) Implications derived from Psychological Foundations Principle 6); and,
18. Employing the technique monitoring of verbal responses is used. It requires bilingual kindergartners to elicit language responses to situations whose truth or falsity can be immediately determined by use of the bilingual preschooler's senses of sight, smell, touch, hearing, and movement (Yawkey & Villarreal, 1980) (Implications derived from Psychological Foundations Principle 6).

The above selected instructional techniques form the primary core of the techniques/strategies or methods that the teachers and paraprofessionals use to work with bilingual kindergarten children and their families. Others were devised for particular needs of the individual youngster as the situations arise and through

on-going data collection/analysis. They were found to be especially effective with bilingual and monolingual kindergartners in enhancing their proficiencies in the English language as well as facilitating cognitive and self-identity development and learning (Day & Parker, 1977).

Project P.I.A.G.E.T.'S Use of Current Research

Research results are crucial to the development, implementation and evaluation of Project P.I.A.G.E.T. The Instructional (page 8), Psychological Foundations (page 9), Instructional Techniques (page 12) and Performance Objectives (page 17) are based on research results of Piaget (1969, 1965, 1963, 1962, 1952) and his associates and other researchers such as White (1963), Yawkey and Villarreal (1980), Hornby (1977), Nedler (1977), Tucker (1977) and many others. In addition, the instructional techniques rest on psychological principles of development and learning and their linkages are thoroughly described in 5.0 Performance Objectives Component (page 17). Finally, the evaluation of Project P.I.A.G.E.T. also rests on research studies and results of Rosenshine (1970), Sjogren (1970), Stake (1970), Resnick (1973), Wang (1973) and others. Complete descriptions of how the research results intersect with and from the basis of Project P.I.A.G.E.T. and its evaluation are described within the above components in the program Narrative.

Replication Plan

The following section on the replication plan for Project P.I.A.G.E.T. provides some background on replication and then explains the program's three stage replication plan. First, the background information follows:

1. Crucial to the replication of Project P.I.A.G.E.T. to new sites is the fact that merely making available curriculum materials and project guidelines for replication purposes causes little of anything new to happen (Yawkey and Silvern, 1977). Replication in a Project mode means: (a) making educators aware of the needs and problems of Spanish-speaking children

and the Spanish-speaking communities within a sociocultural milieu; (b) establishing a trust and change relationship with the new site; (c) developing their expertise for the replication installation; (d) providing training so that the new site can be nurtured but with the goal of having it assume its own training and instructing; (e) evaluating the quality of the replication at the new site after several ongoing program months; and, (f) providing follow-up training and technical assistance on an "on-call" basis.

2. Implicit within the replication plan for Project P.I.A.G.E.T. is: (a) its genuine concern for a "faithful replication" (Yawkey & Silvern, 1977) from the old to a new site -- initially and then proceeding to necessary planned variations based upon systematic data collection and analysis; (b) its genuine concern that the replication blend with cultural values within a sociocultural milieu and past experiences of Spanish-speaking populations who seek to adopt the program; (c) its genuine concern for ease of but planning for replication and local conditions; and, (c) its genuine concern for relevance of the programming-focus for achieving local objectives.

3. For the three-stage replication plan of Project P.I.A.G.E.T. to be implemented, the program needs to be developed, tested and at minimum internally (and at maximum, externally) validated so that all of its components can be operationalized and implemented at new program sites that desire to achieve these similar results.

In context of the above background, the replication plan for Project P.I.A.G.E.T. is explained. Each of the three stages of the replication model follows.

1. Stage 1: Awareness Level. Stage 1 of the replication plan requires initial dissemination of the program. In this respect, State Education Agencies, Community Action Agencies, School District, National Association for

Bilingual Education and other bilingual associations and others are contacted and informed about the program. In addition, The Bethlehem (PA) Area School District also has an extensive national and international network to spread information about the program. Secondly, as a further basis for replication, a three step dissemination model is operationalized. The steps are hierarchically organized on interest level of the prospective client or user for replication.

At Step 1, and in response for replication information, an informational pamphlet on Project P.I.A.G.E.T. is forwarded. It identifies program ogals and outcomes and essentially serves to provide information and create additional awareness and interest. At Step 2, assuming the client wishes more information, a packet is forwarded. This packet contains site information and descriptions of the present project and specific characteristics required for replication to new sites. In Step 3, and to those who respond for more information, a more detailed packet of information concerning replication is forwarded. It includes cost factors to help potential clients develop budgets for materials, space, and personnel and description of instruction, training, and management systems. At this stage, a filmstrip accompanies this information that permits some degree of "observability" -- of the ongoing program routines in the actual Center/Classroom and Home Programs. The above information is shared in a step-by-step approach to these potential users interested in replication in an effort to make them fully aware of the program, its costs, and general instructional, training, and management components crucial to a "faithful" replication. Also, the information across the above three steps is organized such that it draws them nearer to replication decisions. With the above information shared, the second stage is one of involvement.

2. Stage 2: Involvement Level. The purpose of Stage 2 is for the potential client(s) who desire to replicate the program to make a visit to the Bethlehem (PA) sites. As such, it is another level of "observability" before the commitment is made to replicate the program. Further, the initial site visit permits direct observation of its innovative functions in Center/Classroom and Home Programs and provides first hand experiences of the instructional and training materials used for accomplishing its performance objectives. Secondly, the replication plan at this stage calls for simple consulting sessions to discuss the program components after reviewing them in operation. Key aspects basic to a successful replication that are shared include: (a) cost; (b) staff and training personnel; (c) space required; (d) time required to gear up for the replication; (e) magnitude of the innovation given program results; and, (f) value orientation which deals with cognitive-interactionist philosophy of the program, program performance objectives, and its coherent organization/orientation. Finally, the aspects of commitment to and installation of the replication are described.

3. Stage 3: Commitment/Installation Level. The steps crucial to the commitment/installation of the replication are: (a) training of and technical assistance for change agents; (b) program installation; (c) evaluation of the replication; and, (d) follow-up training and technical assistance. Step 1, training of and technical assistance for the change agents involves groundwork for insuring a "faithful" and successful (but not a piecemeal) replication (Yawkey & Silvern, 1977) of Project P.I.A.G.E.T. to a new site. Prior to and several months before the actual installment of the replication to the new site, staff training of new personnel at the Bethlehem (PA) sites begins. The new site identifies an "installation" bilingual teacher who receives training at the Bethlehem (PA) sites and helps to get the replication program started. This aspect of change agent networking also provides contact

between the Bethlehem (PA) sites and the new site and is extremely critical for successful replications (Yawkey & Silvern, 1977). In addition, workshops for the administrator of the new site are also planned and helps him/her take responsibility for training instructional staff and identifying and solving problems of implementation. This time at the Bethlehem (PA) sites also permits the teacher and administrator to brainstorm for solutions to difficulties of implementing the program at the new site and seek assistance from Project P.I.A.G.E.T. staff. Finally, this initial training of and technical assistance for these change agents permit a tailoring of the replication format to the new site and as well as an identification of what is needed for successful replication, such as materials, training, and technical assistance.

Step 2 is the actual installation of the replication at the new site. Provision is made to continue the staff linkages with continued training and technical assistance given at the new site. Here, the training of additional teaching and paraprofessional staff in the Center/Classroom and paraprofessional staff in the Home Programs for the program replication is undertaken. Differentiated training is employed where administrators receive training for example on leadership skills and the staff, for instance, on instructional procedures and both receive training together on cognitive-interactionist philosophy and underlying rationales basic to the program. Provisions to wean the Bethlehem (PA) sites away from the new site are made and implemented. Step 3 calls for evaluation of the replication. Here, the program is evaluated at the new site to measure the degree of program adherence to the original program sites in Bethlehem (PA). In this evaluation, tailoring and program variations are taken into account.

Step 4 is follow-up training and technical assistance. Follow-up assistance is provided on an "on-call" basis. In addition, the technical

assistance is aimed at helping the staff and administrators continue to use systematic procedures to validate ideas basic to the planned variation to further improve the program at the new site.

Summary

The Center/Classroom Program of Project P.I.A.G.E.T. is a highly individualized child centered approach. In addition it is also seen as a laboratory for parents in learning how to stimulate their children in the appropriate manner for the development of bilingual language ability. The Center/Classroom Program will be influenced by needs discovered through the Home Based Program. The instructional techniques, use of current research, and replication plan are also valuable aspects of Project P.I.A.G.E.T.

In sum, Project P.I.A.G.E.T. is a systematic model for the acquisition of English and the maintenance of Spanish. It is based on Piagetian principles and contains both home and center programs that compliment and extent each other and the objectives of the schools and Hispanic community.

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